

This Page Is Inserted by IFW Operations
and is not a part of the Official Record

BEST AVAILABLE IMAGES

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images may include (but are not limited to):

- BLACK BORDERS
- TEXT CUT OFF AT TOP, BOTTOM OR SIDES
- FADED TEXT
- ILLEGIBLE TEXT
- SKEWED/SLANTED IMAGES
- COLORED PHOTOS
- BLACK OR VERY BLACK AND WHITE DARK PHOTOS
- GRAY SCALE DOCUMENTS

IMAGES ARE BEST AVAILABLE COPY.

**As rescanning documents *will not* correct images,
please do not report the images to the
Image Problem Mailbox.**

Figure 1. DNA and Amino Acid Sequences of the Diversified Region of Subtilisin.

Amino acid sequence of pre-pro peptide shown in small letters. Amino acid sequence of the mature peptide are shown in capital letters. Amino acid sequence of the diversified region are shown in capital, bold letters.

m kkplgkivas
-100 tallisvafs ssiasaaeea kekyligfne qeavsefveq veandevail
-50 seeeveiel lhefetipvl svelspedvd aleldpaisy ieedaevttm
1 AQSVPWGISR VQAPAAHNRG LTGSGVKVAV LDTGISTHPD LNIRGGASFV
51 **PGE****PSTQ****DGN** **GHG****THVAGTI** **AAL****NNSIGVL** **GVAP****SAELYA** **VKVL****GASGSG**
101 **SVSS****IAQGLE** **WAG****NNGTHVA** **NLS****LGSPSPS** **ATLE****QAVNSA** **TSRG****VLVVAA**
151 **SGNS****GAGSIS** **YPAR****YANAMA** **VGAT****DQNNNR** **ASFS****QYGAGL** **DIVAP****GVNVQ**
201 **STYP****GSTYAS** **LNGT****SMATPH** **VAGVA****ALVKQ** **KNPS****WSNVQI** **RNHL****KNTATS**
251 **LGST****NLYGSG** **LVNA****EAAATR**

Subtilisin Structure-Function Correlation

Thermostability Motifs

76

Majority	10	20	30	40	50	60	
1a3.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
4c6.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
4c6.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
3a3.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
3a2.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
3a7.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
5b11.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
4d10.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
1f6.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166
4c2.seq	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	166

Savilane.seq	GASFPJEP	STODGNGHGT	HVAGTVAAL	NSIGVIGVAP	SADLYAVKVL	LGANGRUSV	GIAGGLE	193
--------------	----------	------------	-----------	------------	------------	-----------	---------	-----

Majority	70	80	90	100	110	120	
1a3.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
4c6.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
1b1.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
3a7.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
5b11.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
4d10.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
1f6.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170
4c2.seq	W A A A H N M H I A N M S L G S D A P S T T L E R A V N Y A T S G V L L V I A A T G N N G S G S V G Y P A R Y A N A M A V G A T D						170

Savilane.seq	WAGYNGMHIA	NLSLGS	SPSAT	LEQAVN	KSAT	SRGVLLVVA	ASJHSGAGSISYPARYANAMAVGATD	188
--------------	------------	--------	-------	--------	------	-----------	----------------------------	-----

Majority	140	150	160	170	180			
1a3.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
4c6.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
1b1.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
3a2.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
3a7.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
5b11.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
4d10.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
1f6.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190
4c2.seq	QNNRRANF	SQYGTG	IDIVA	PPGVNV	QSTY	PPGNRYASLNQTSMA	TPHVAAGAAALVK	190

Savilane.seq	QNNNRASP	SQYGAOL	DIVA	PPGVNV	QSTY	PPGSTYAS	LNQTSMA	TPHVAAGAAALVK	CKMP	SM	SN	SV	X	580
--------------	----------	---------	------	--------	------	----------	---------	---------------	------	----	----	----	---	-----

QNNRRASFSQYGAGLIVAPG'N",OSTYPSSTYASLNU TJHATPH?AUAALVXQKNPSMN,VX
Savinaae.acd 580

1126P 2420111/1, P.15

History

Divine . . .

MA G H N G, M H V A N L S L O S P Z S A T L E O A V N S A T S R G V L V A S G N S U A G S I S Y P A R Y A N A M A V G N T D M H

Majority

Савинский Нег

ONNNRA SPSQYJALD:VAPQVNVQSTYFQSTYFASLNGTSMATPHVAGAAAVKCKNFSNZNVA X
1-00